

R09

Code No: D0303

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M.Tech II - Semester Examinations, March/April 2011

**DOWNSTREAM PROCESSING
(BIOTECHNOLOGY)**

Time: 3hours

Max. Marks: 60

**Answer any five questions
All questions carry equal marks**

1. Explain the role of downstream processing in Biotechnology? Why is preliminary economic analysis or cost analysis performed in Bio-process? [5 + 7]
2. Explain about the principles behind foaming in bioprocesses, giving examples write about the various foaming agents and their interactions with products. [12]
3. List out and describe the different techniques and equipments employed in the Precipitation method employed in downstream processes? [12]
4. Explain the principle behind drying in downstream processing also how Equilibrium Moisture content (EMC) and relative humidity are utilized in interpreting the drying curves. [12]
5. What is the role of crystallization in bioprocesses? Explain about its applications for two successful products. [12]
6. Explain the principle and applications of chromatography in bioprocess. Elucidate on the different types of chromatographic methods available to a Biotechnologist. [12]
7. Why is the method of cell disruption used in bio-processing? Explain in detail about the physical and mechanical methods of Cell disruption and its advantages and disadvantages. [6 + 6]
8. Differentiate between the principles governing co-current and counter current extraction processes and write about their application in bio-processing. [12]
